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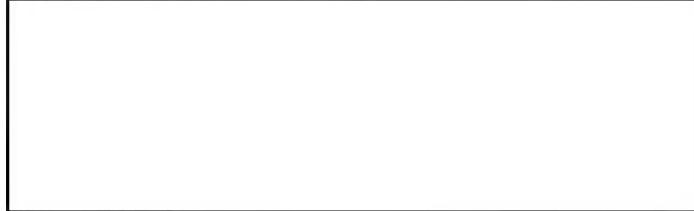
11 October 1966

MEMORANDUM FOR THE RECORD

SUBJECT: Life Support Equipment Improvement Meeting

1. Subject meeting was held 7 October 1966 with the following attendees:

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2. Purpose of Meeting: To discuss improvements in life support equipment; specifically those proposals and recommendations made by LAC in SP-1123, current status (report) dated 22 September 1966, and [redacted] in [redacted] message 2364 dated 27 September 1966. Each proposal or recommendation was discussed with reference to its applicability, its impact on other items of equipment and the status of work done to date. The agency to take action on each item was identified and the earliest estimated date for tests and/or incorporation was determined.

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3. Results of Meeting

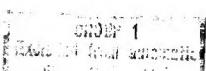
a. Improved flotation for water survival.

The David Clark Co. is developing several items related to the flotation function of the pilots protective assembly and will have an improved prototype system ready for preliminary pool tests in three to four weeks. This system will have the following changes:

USAF review(s) completed.

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OXC-11128-66

(1) An inflatable flotation device on the outside of the outer garment. The goal is to provide additional buoyancy and to assist in keeping the pilot face-up in the water. This will be a manually activated inflation device.

(2) The inflation device and lanyard for the present flotation garment will be relocated so the lanyard can be reached easily with either hand for activation. The oral inflation tube will also be relocated for easier access.

(3) The pockets in the outer garment will have bottom sections made of link-net to preclude the pockets holding water and acting as sea anchors. The attachment of the lower leg of the outer garment to the suit proper will be made by lacing to allow water to escape rapidly from this area.

(4) The inflation lanyard knobs and storage pockets for both the present flotation garment and the additional flotation device will be redesigned to allow the pilot to locate these items more readily.

(5) In addition to the above changes in the flotation function of the pilots protective assembly; the David Clark Co. is also developing a prototype life raft with the foot end open for easier boarding. This prototype raft will also be ready for preliminary pool tests in mid-November.

b. Additional David Clark action items

(1) The David Clark Co. has already provided instruction to their technical representatives at [redacted] to accomplish the following:

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(a) Reinforcement for wear points on the present flotation garment.

(b) Enlarged tab for knife pocket to provide for easier access and opening.

[redacted]

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25X1

OXC-11128-66

(2) A latch to positively mechanically lock the visor closed until released by the pilot is in the design stage and a prototype for preliminary evaluation will be available in 30 days. Such a latch is designed to prevent the visor from opening due to negative acceleration if the primary visor release knob has been damaged.

(3) Modifications and additional hardware for present helmets to guard the visor actuating knobs would be unacceptable with respect to added weight and bulk. The David Clark Co. will submit a proposal for redesigning the helmet to protect these controls.

(4) The present ambient bleed in the flotation garment CO<sub>2</sub> valve cannot be removed unless volume expansion of the flotation garment is minimal at normal cockpit altitudes.

will run altitude chamber tests at [redacted] to find out whether or not the gas expansion in the present flotation device necessitates an ambient bleed or not. No action on removing this feature is scheduled until such tests are completed in the next two weeks.

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(5) A preliminary consideration is being given to the possibility of providing heat to a pilot's gloves during parachute descent. A detailed study of ventilation requirements, of cooling and heating of dry versus wet hands, of the influence of air movement and of the power requirement would be undertaken by the David Clark Co. if this feature is required. This item is only in the "thinking" stage at this time.

(6) The present visor up-lock mechanism will be investigated to determine what forces will overcome it and allow the visor to close. If this latch requires modification to prevent the visor from coming down upon water entry, required changes will be made as appropriate.

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OXC-11128-66

c. Firewel Co. Action Items

(1) LAC has provided Firewel with twelve sets of oxygen fittings fabricated from one piece of stainless steel to eliminate the vulnerability of the present silver brazed design. Firewel is having these fittings equipped with hoses and the first set, which will be sent to LAC for tests and evaluation, will be ready the week of 10 October. The remaining sets will be available with hoses attached by mid-November. Firewel will, once the LAC tests are completed, manufacture improved fittings to replace those presently in field use.

(2) Firewel will establish the correct procedure for mounting the new URT-27 Radio Beacon in the parachute pack utilizing quarter-turn fasteners so the pilot can remove it easily. The undersigned is to locate one URT-27 to send to Firewel so the necessary mountings can be developed. This will be accomplished during the week of 10 October and the goal is to have the required mounting hardware available at the same time the depot can furnish [ ] with the URT-27 (45 to 60 days). In the meantime, Firewel is to send [ ] the necessary hardware to install a minimum number of URT-21 beacons as an interim item.

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(3) Firewel is to handle the modification of three to four seat kits into an automatically deployed configuration. These initial kits will be evaluated and jump tested at [ ] and if acceptable, Firewel will modify all seat kits to this configuration. The initial modified kits will be available for test and evaluation in approximately five weeks. An additional modification that allows attaching the raft lanyard to the pilot's suit D-ring prior to take off will be accomplished at the same time.

d. LAC Action Items

(1) LAC will continue to follow and pursue the development of automatic CO<sub>2</sub> inflators for [ ]

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SECRET

OXC-11128-66

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flotation garments and devices. Items identified as being potentially useful will be tested by [redacted] life support personnel for applicability.

(2) Prototype batteries and wiring for face plate defogging during parachute descent will be available for preliminary evaluation and tests in two weeks.

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(3) A prototype cover for the suit controller has been developed and will be sent to [redacted] the week of 10 October for their opinion and evaluation. The influence of this protective cover on suit back pressure will be investigated by [redacted] life support personnel.

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(4) Prototype improved lap belt adjusting hardware will be sent to [redacted] for evaluation within the next two weeks. Since lap belt slippage has produced oxygen fitting damage in two instances and helmet damage in one case, this modification is of the utmost importance.

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(5) [redacted] will insure better coordination of LAC personnel responsible for test pilots equipment with [redacted] life support personnel to insure that test pilots have the latest equipment and modifications.

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(6) LAC will continue to investigate life raft systems designed to place an incapacitated pilot in the raft with no effort on his part. Bulk of systems presently in existence and reliability are the big hurdles at this time. In addition, there are other problems involved in recovering an unconscious pilot that must be overcome before an automatic life-raft will serve its purpose, such as how to spill the parachute canopy; how to insure face up flotation; and how to preclude water entering the helmet with the visor down upon initial entry into the water. There is no estimated date of availability of a system to recover an incapacitated pilot at this time. A fairly extensive R&D effort would be required to produce such a system.

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OXC-11128-66

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e. [ ] Action Items in addition to tests  
and evaluations specified in above paragraphs:

(1) As an interim measure to provide auxillary flotation, [ ] proposes the use of parachute harness attached LPU-3P flotation gear. They will proceed with checking the compatibility of this equipment and whether all project pilots can utilize such a system in the cockpit. The undersigned is attempting to obtain test data to determine if the LPU attached to the harness can withstand high wind blast effects. If the test data is favorable, [ ] will be given the go-ahead for this modification as an interim measure pending the outcome of tests on additional flotation devices under development by the David Clark Co.

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(2) [ ] life support personnel are evaluating modifications of the parachute chest strap buckle to make adjustment easier during parachute descent and life vest inflation. Their evaluation should be complete within two weeks with modification of all parachutes to be accomplished immediately thereafter.

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(3) [ ] personnel are to install URT-21 Radio Beacons in a minimum number of parachute packs during the week of 10 October 1966. These will serve as interim modifications until URT-27's become available (45 to 60 days) for installation in all parachutes.

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